

Chapter 7 Test Review

Name: \_\_\_\_\_

Classify the polynomial by degree and number of terms. Describe the shape of its graph.

1.  $-x$

[A] linear monomial; straight line

[B] quadratic monomial; straight line

[C] linear monomial; parabola

[D] quadratic monomial; parabola

[1] \_\_\_\_\_

2.  $-2x^3 + x$

[2] \_\_\_\_\_

[A] cubic binomial; 'S' shaped with 2 turns

[B] quartic quadrinomial; 'S' shaped with 2 turns

[C] cubic binomial; 'W' shaped with 3 turns

[D] quartic quadrinomial; 'W' shaped with 3 turns

3.  $-x^3 - 4x^2 + 1$

[3] \_\_\_\_\_

4. Determine the end behavior of the graph of the function  $f(x) = 3x^4 - 3x - 2$ .

[A] falls to the left; falls to the right

[B] rises to the left; rises to the right

[C] falls to the left; rises to the right

[D] rises to the left; falls to the right

[4] \_\_\_\_\_

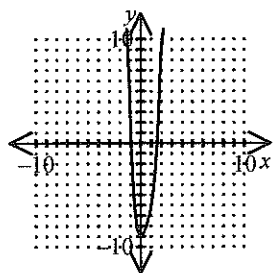
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Name: \_\_\_\_\_

Graph the function and approximate any local maxima or minima to the nearest tenth. Specify the intervals in which the function is increasing or decreasing.

5.  $P(x) = -2x^4 - 4x^3 + 5x^2 - 9$

[A]



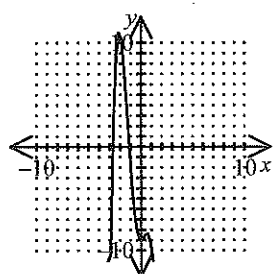
no max

min:  $\approx -9.0$

increasing:  $x > 0$

decreasing:  $x < 0$

[B]



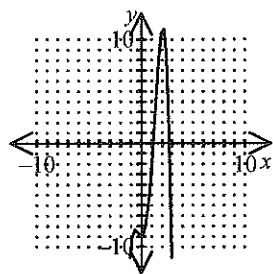
max:  $\approx 11.2$  and  $\approx -8.3$

min:  $\approx -9.0$

increasing:  $0 < x < 0.6$ , and  $x < -2.1$

decreasing:  $x > 0.6$ , and  $-2.1 < x < 0$

[C]



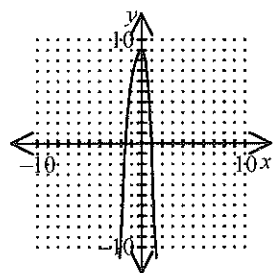
max:  $\approx 11.2$  and  $\approx -8.3$

min:  $\approx -9.0$

increasing:  $x < -0.6$ , and  $0 < x < 2.1$

decreasing:  $-0.6 < x < 0$ , and  $x > 2.1$

[D]



max:  $\approx 9.0$

no min

increasing:  $x < 0$

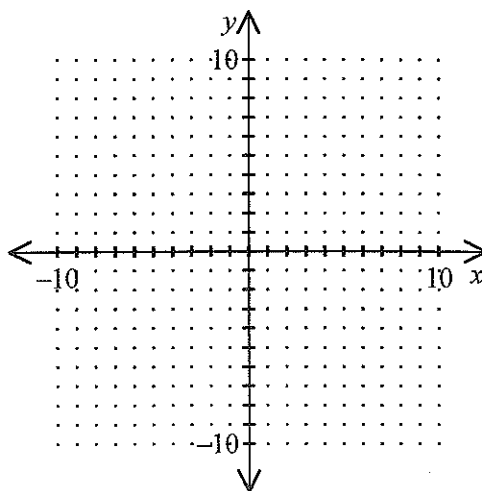
decreasing:  $x > 0$

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Graph the function and approximate any local maxima or minima to the nearest tenth.  
Specify the intervals in which the function is increasing or decreasing.

6.  $P(x) = 2x^5 - 2x^4 + 3x^2 - 8x - 3$



[6] \_\_\_\_\_

7. Determine the end behavior of the graph of the function  $f(x) = -3x^6 + 3x^4 + 3x^3$ .

[7] \_\_\_\_\_

8. Divide  $x^3 + 10x^2 + 28x + 24 \div x + 6$ .

- [A]  $x^2 + 4x + 4$       [B]  $x^2 - 5x + 4$       [C]  $x^2 - 3x - 4$       [D]  $x^2 - 4x + 4$

[8] \_\_\_\_\_

9. Write the product as a polynomial in standard form.

$(x - 4)(x - 2)(x - 3)$

[9] \_\_\_\_\_

[A]  $x^3 - 9x^2 + 6x + 8$

[B]  $x^3 - 24$

[C]  $x^3 - 9x^2 + 26x - 24$

[D]  $x^3 - 5x^2 + 26x + 6$

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10. Divide  $(2x^4 - 2x^3 - 4x - 4) \div (x - 2)$  by using long division.

[10] \_\_\_\_\_

Use a graph, synthetic division, substitution, and factoring to solve the equation.

11.  $x^3 + 2x^2 - 35x = 0$  [A] 0, -7, 5 [B] 0, -7, -5 [C] 0, 7, -5 [D] 0, 7, 5

[11] \_\_\_\_\_

12.  $x^3 - 7x - 6 = 0$

[12] \_\_\_\_\_

13. Find the real zeros of the function. Give approximate values to the nearest hundredth, if necessary.

$$f(x) = x^3 - 4x^2 + 7x - 12$$

[A] 3, 4

[B] 6

[C] 3

[D] 6, 7

[13] \_\_\_\_\_

Find all the zeros of the polynomial function.

14.  $f(x) = x^3 + x^2 - x + 2$

[A]  $1, 2 \pm \frac{i\sqrt{3}}{2}$

[B]  $1, 2 \pm i\sqrt{3}$

[C]  $-2, -1 \pm i\sqrt{3}$

[D]  $-2, \frac{1 \pm i\sqrt{3}}{2}$

[14] \_\_\_\_\_

15.  $f(x) = 36x^2 - 25$

[15] \_\_\_\_\_